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| 10/695,978 | 10/29/2003 | Edmund O. Schweitzer III | | 8010 |

7590 05/07/2007
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EXAMINER

THOMAS, LUCY M

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| ART UNIT | PAPER NUMBER |
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2836

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05/07/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No. .

10/695,978

Applicant(s)

SCHWEITZER ET AL.

Examiner

Lucy Thomas

Art Unit

2836

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2007.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-8,10,11 and 14-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-8,10,11 and 14-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-2 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Guzman-Casillas et al. (US 6,028,754). Regarding Claim 1, Guzman-Casillas discloses a system (Figures 6 and 9) for improving the performance of a distance type protective relay for power systems, wherein, the relay includes a calculation circuit responsive to voltage and current values from the power line to produce a quantity (m value) analogous to the distance between the relay and a fault on the power line, wherein the quantity is applied to a distance element for comparison of said quantity with a setting reach value for a selected zone of a protection (Column 2, lines 17-35, Column 8, lines 15-36), the system comprising: a filter circuit (see 140 in Figure 9 and the circuit in Figure 6) responsive to said quantity for smoothness determination said quantity before the quantity is applied to the distance element, resulting in the noise attenuation of the quantity (Column 8, lines 4-14); and a control circuit (see 130, 134, 138 in Figure 9) for controlling the application of the filtered quantity to the distance element such that the filtered quantity is applied only when said quantity is above a preselected first threshold value (see 130, $m \leq ZR1NEW\ NO$) and below a preselected second threshold value

Art Unit: 2836

(see 134 in Figure 9, $m \leq ZR1$ YES, Also, see Column 9, lines 61-67, Column 10, lines 1-9, 60-63, Column 11, lines 1-9).

Regarding Claim 2, Guzman-Casillas et al. discloses the said system, wherein the preselected first threshold is a selected percentage of the setting reach value (Column 10, lines 10-15).

Regarding Claim 6, Guzman-Casillas et al. discloses a system further comprising a circuit for precharging the filter to the preselected second threshold value when said quantity decreases to the preselected second threshold value from said high value, in response to fault (Figure 9, Column 10, lines 60-63, Column 11, lines 1-9).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3, 5, 7- 8, 10-11, and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guzman-Casillas et al. (US 6,028,754). Regarding Claim 3, the recited limitations are not considered inventive because the threshold is typically set based on the tolerance for error, which would result in 100% minus the error plus a safety margin as recited by the Claim. The claims specify a safety margin of 5% and Claim 5 further specifies an error of 8%. However, it has been decided that where the prior art disclose the general condition of a claim, it is not inventive to discover the

optimum or workable ranges by routine experimentation. *In re Aller*, 220 F.2d 454, 456 105 USPQ 233, 235 (CCPA 1955).

Regarding Claim 7, the reference does not disclose a specific value for the threshold. However, it would have been obvious that the threshold value may be set approximately four times the setting reach value as recited in Claim 7. It has been decided that where the prior art discloses the general condition of a claim, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Aller*, 220 F.2d 454, 456 105 USPQ 233, 235 (CCPA 1955).

Regarding Claim 8, Guzman-Casillas et al. discloses an apparatus (Figures 6 and 9) for selecting one of a filtered m value and an unfiltered m value provided to a distance element of a protective relay providing protection for a transmission line of a power system, the protective relay including a calculation circuit adapted to provide the unfiltered m value indicative of a distance between the protective relay and a fault (Column 2, lines 17-35, Column 8, lines 15-36), and a filter (see 140 in Figure 9 and the circuit in Figure 6) adapted to filter the unfiltered m value to form the filtered m value, the apparatus comprising: a first comparator 76 including an output determined by a first input configured to receive the unfiltered m value and a second input configured to receive a first percentage of a zone reach value; a second comparator 72 including an output determined by a first input and a second input; and a logic circuit 74, coupled to the first comparator and the second comparator, the logic circuit providing a switched output, the switched output being either the filtered m value or the unfiltered m value based on the values of the first comparator and the second comparator (see 130, 134,

Art Unit: 2836

138 in Figure 9, and circuit in Figure 6, Column 9, lines 61-67, Column 10, lines 1-9, 60-63, Column 11, lines 1-9).

Regarding Claims 10-11, Guzman-Casillas disclose that the filter is charged immediately after the unfiltered m value is equal to or less than the first percentage of the zone reach value, the unfiltered m value equaling the first percentage of the preselected setting indicating an occurrence of a fault in the transmission line (Column 8, lines 37-50).

Regarding Claims 11 and 17, Guzman-Casillas discloses filter operation is defined by $msk = -0.15 * mk + 0.135$ (which differs from that recited in Claim, $msk = 0.6 * mk + 0.135$ as the inputs to the comparators differs).

Regarding Claims 14-16, the recited steps of the method claims would necessarily be performed when using the apparatus of Claims 8 and 10. Therefore, please see the rejection of Claims 8 and 10-11 above.

Response to Arguments

5. Applicant's arguments filed on 2/22/2007 have been fully considered.

Regarding Applicant's arguments toward a filter: Filter can be any arrangement to filter out specific frequencies, as simple as a capacitor, which can filter noise or an RC circuit, which can delay the signal to filter noise, or as Munch et al. (US 5,784,241) stated in Column 5, lines 50-59, "the filtering means 2 can be implemented in various ways depending on the respective electrical device for which the filtering means 2 is designed. One possible embodiment of the filtering means 2 implies to hold the status of the output signal while ambient electromagnetic noise is disturbing the sensitive

signals, but it can be taken for granted that alternative filter means 2 having more sophisticated functions can also be used”.

In Figure 9, Guzman-Casillas makes the determination at 130, whether m less than or equal to $Zr1_{new}$ (checking for close-in fault), if yes send the m value to trip, if no make further determination including smoothness, and if the smoothness criteria is met, then send the m -value is sent to trip. Figure 6 of Guzman-Casillas is represents circuit for the second determination, i.e., delays and smoothness determination. As Applicant noted in Remarks, on page 12, lines 13-14, “one input to comparator $|mab(k) - mab(k-1)|$ may be considered a filter (filtered quantity”, it is clear that there is a filter which meets Applicant’s definition. Filtering/smoothness determination is carried out and only if met the m -value is sent to trip.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

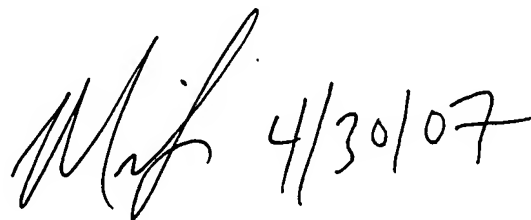
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lucy Thomas whose telephone number is 571-272-6002. The examiner can normally be reached on Monday - Friday 8:00 AM - 4:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on 571-272-2084. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LT
April 23, 2007



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